

VS Id#	Vital Sign Category			Vital Sign	Network Rank	KALA
H17	Management Zones			Wilderness Areas - HAVO, HALE, other Unofficial	1.1	
P16	Soil, Water, & Nutrient Dynamics			Soil Crust Change (Arid-Semiarid habitats)	0.9	
P41	Geology	Landforms		Permafrost on Big Island summits	0.0	
P44	Geology	Landforms		Cave Geology: karst	0.9	
H04	Land Use			Alien Invasive Species Points of Entry	3.4	4.8
H15	Park Use & Activities			Reef Fisheries Harvest	2.6	4.8
H09	Park Use & Activities			Footprint & Visitor Use Patterns	3.3	4.6
H16	Management Zones			Management Zone uses	3.1	4.6
M02	Marine Ecosystems	Benthic	Landscape	Benthic Habitats	2.6	4.6
M04	Marine Ecosystems	Benthic	Community	Subtidal - Hard Bottom (coral reef, colonized basalt, etc.)	2.7	4.6
M05	Marine Ecosystems	Benthic	Community	Subtidal - Soft Bottom (sand flat, seagrass bed)	2.4	4.6
M12	Marine Ecosystems	Benthic	Population	Alien Incipient Invasives - Benthic Marine	2.8	4.6
M20	Marine Ecosystems	Water column (motile)	Population	Marine Species Protection (T, E, S-o-C species)	3.3	4.6
M26	Marine Ecosystems	Intertidal	Population	Intertidal Marine Invertebrates, Fish, and Algae	3.0	4.6
M28	Marine Ecosystems	Intertidal	Population	Alien Incipient Invasives - Intertidal Marine	2.6	4.6
P06	Climate & Air Quality			Solar radiation	2.7	4.6
P17	Soil, Water, & Nutrient Dynamics			Flowing surface water hydrology	2.7	4.6
P28	Water Quality			Surface Water Quality - Microbiology	2.9	4.6
T13	Terrestrial Ecosystems	Vegetation	Population	Native Plant Species Protection (T, E, S-o-C species)	4.0	4.6
T21	Terrestrial Ecosystems	Consumers	Community	Recovery/change of Native Wildlife and habitats (including wetlands) with restoration of native vegetation	3.2	4.6
T30	Terrestrial Ecosystems	Consumers	Population	Established Disease & Pathogens of Terrestrial Vertebrates	2.5	4.6
T32	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Feral Ungulates	2.4	4.6
P22	Water Quality			Surface Water Quality Core parameters	3.6	4.5
M03	Marine Ecosystems	Benthic	Community	Benthic Marine Invertebrates and Algae Biodiversity	2.8	4.4
M06	Marine Ecosystems	Benthic	Population	Benthic Reef Fisheries / Collected species (inverts: sea cucumbers, pololo worm, corals; etc)	2.7	4.4
P19	Soil, Water, & Nutrient Dynamics			Groundwater dynamics	2.4	4.4
P32	Water Quality			Marine Water Quality - macroinvertebrates	2.8	4.4
P33	Water Quality			Surface Water Quality - macroinvertebrates	2.6	4.4
T03	Terrestrial Ecosystems	Vegetation	Landscape	Landscape Fragments, Patch Size, Land Cover	2.6	4.4
T09	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Feral Ungulate Control	2.4	4.4
T16	Terrestrial Ecosystems	Vegetation	Population	Established Alien Species - Plants	4.0	4.4
T17	Terrestrial Ecosystems	Vegetation	Population	Alien Incipient Invasive Plants	3.7	4.4
T19	Terrestrial Ecosystems	Consumers	Community	Terrestrial Vertebrate (including off-shore islets refugia) Biodiversity	3.3	4.4
T23	Terrestrial Ecosystems	Consumers	Population	Forest Birds and Bats (includes T & E spp.)	3.1	4.4
T31	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Disease & Pathogens of Terrestrial Vertebrates	2.5	4.4
M24	Marine Ecosystems	Intertidal	Community	Intertidal - Soft Bottom (sand beach, mudflat, mangrove)	2.6	4.3
M25	Marine Ecosystems	Intertidal	Population	Intertidal Reef Fisheries / Collected species (limu, opahi, crabs, fish, etc.)	2.3	4.3
P29	Water Quality			Ground Water Quality - Toxics & contaminants	2.8	4.3
P30	Water Quality			Marine Water Quality - Toxics & contaminants	3.0	4.3
H05	Land Use			Water Use(s) Within & Surrounding Parks	3.0	4.2
M10	Marine Ecosystems	Benthic	Population	Alien Incipient Coral Disease & Pathogens	2.5	4.2
M23	Marine Ecosystems	Intertidal	Community	Intertidal - Hard Bottom	2.2	4.2
T06	Terrestrial Ecosystems	Vegetation	Community	Terrestrial Plant Biodiversity	3.6	4.2
T07	Terrestrial Ecosystems	Vegetation	Community	Long-term Plant Succession	3.5	4.2
T08	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Alien Plant Control	3.5	4.2
T37	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Predatory Terrestrial Vertebrate	3.3	4.2
P08	Climate & Air Quality			Extreme events (weather & ocean)	3.0	4.1
P42	Geology	Landforms		Cave Environmental conditions	2.0	4.1
T12	Terrestrial Ecosystems	Vegetation	Population	Plant Pathogen Biocontrol of Plants	1.6	4.1
F1	Freshwater Ecosystems	Producers		Community dynamics of primary producers	2.5	4.0
H02	Viewscapes / Lightscapes			Viewsheds	2.7	4.0
M19	Marine Ecosystems	Water column (motile)	Population	Fish Growth/Size and Age Structure, and Recruitment	3.2	4.0
M22	Marine Ecosystems	Intertidal	Community	Intertidal Biodiversity - Vertebrates, Invertebrates, and Algae	3.1	4.0
T02	Terrestrial Ecosystems	Vegetation	Landscape	Ecozone Boundaries	2.1	4.0
T18	Terrestrial Ecosystems	Consumers	Community	Terrestrial Invertebrate Biodiversity	2.9	4.0
T26	Terrestrial Ecosystems	Consumers	Population	Seabirds (including T & E spp.)	3.5	4.0
T33	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Invasive Terrestrial Invertebrate Pests of natural systems	2.4	4.0
H08	Park Use & Activities			Marine Recreational Activities & Groundings/Anchor Damage	2.5	4.0
M01	Marine Ecosystems	Benthic	Landscape	Coral Growth (erosion & accretion)	2.7	4.0
M14	Marine Ecosystems	Water column (motile)	Population	Water Column Reef Fisheries	2.2	4.0
P20	Water Quality			Ground Water Quality Core parameters	2.8	4.0
T41	Terrestrial Ecosystems	Cave Systems	Community	Cave & lava tube communities	2.0	3.9
P13	Soil, Water, & Nutrient Dynamics			Soil Quality - Biological	1.7	3.8
P14	Soil, Water, & Nutrient Dynamics			Soil Quality- Chemical	1.9	3.8
P15	Soil, Water, & Nutrient Dynamics			Soil Quality- Physical	2.3	3.8
F6	Freshwater Ecosystems	Consumers	Population	Alien Incipient Invasives - Predatory Freshwater (vertebrate and invertebrate)	2.8	3.8
M08	Marine Ecosystems	Benthic	Population	Coral Growth/Size and Age Structure, and Recruitment	2.6	3.8
M09	Marine Ecosystems	Benthic	Population	Established Coral Disease & Pathogens (including bleaching)	2.4	3.8
M11	Marine Ecosystems	Benthic	Population	Established Alien Species - Benthic Marine	2.7	3.8
M16	Marine Ecosystems	Water column (motile)	Population	Established Turtle Disease & Pathogens	2.9	3.8
M18	Marine Ecosystems	Water column (motile)	Population	Water Column Marine Invertebrates	2.8	3.8
P12	Soil, Water, & Nutrient Dynamics			Soil Erosion	2.9	3.8
P39	Geology	Landforms		Coastal Shoreline Change (erosion & accretion)	3.2	3.8
T34	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Predatory Terrestrial Vertebrates	3.4	3.8
T29	Terrestrial Ecosystems	Consumers	Population	Terrestrial Invertebrate Species Protection (T, E, S-o-C Species)	2.9	3.7
H06	Land Use			Land Use(s) Within & Surrounding Parks	3.4	3.6
M07	Marine Ecosystems	Benthic	Population	Benthic Marine Invertebrates and Algae	2.7	3.6
M13	Marine Ecosystems	Water column (motile)	Community	Water Column Marine Vertebrates and Invertebrates Biodiversity	2.8	3.6
P04	Climate & Air Quality			Marine Aerosols	1.4	3.6
P07	Climate & Air Quality			Weather & Climate	3.4	3.6
P36	Geology	Hazards		Seismicity of Non-Volcanic Origin	1.9	3.6
P37	Geology	Hazards		Seismicity of Volcanic Origin	1.8	3.6
T11	Terrestrial Ecosystems	Vegetation	Population	Invertebrate Biocontrol of Plants	1.7	3.6
T14	Terrestrial Ecosystems	Vegetation	Population	Established Plant Disease & Pathogens	2.9	3.6
T15	Terrestrial Ecosystems	Vegetation	Population	Alien Incipient Plant Disease & Pathogens	2.6	3.6
F5	Freshwater Ecosystems	Consumers	Population	Established Alien Species - Predatory Freshwater (vertebrate and invertebrate)	2.9	3.5
P25	Water Quality			Surface Water Quality Supplemental parameters	3.5	3.5
P31	Water Quality			Surface Water Quality - Toxics & contaminants	3.7	3.5
T36	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Terrestrial Invertebrate Pests (human structures)	1.9	3.5
P23	Water Quality			Ground Water Quality Supplemental parameters	2.6	3.4
T22	Terrestrial Ecosystems	Consumers	Population	Invertebrate Biocontrol of Invertebrates	1.7	3.4
T38	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Fungi	2.0	3.4
T40	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Vertebrates	2.6	3.4
H03	Viewscapes / Lightscapes			Lightscape & Night sky	2.7	3.4
H12	Park Use & Activities			Coral/Sand Mining Harvest	1.2	3.4
P21	Water Quality			Marine Water Quality Core parameters	3.3	3.4
F3	Freshwater Ecosystems	Consumers	Population	Freshwater Animals Disease & Pathogen	2.2	3.2
T01	Terrestrial Ecosystems	Vegetation	Landscape	Soil and Pollen Landscape History	2.3	3.2

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P26	Water Quality			Ground Water Quality - Microbiology	2.9	3.2
H07	Park Use & Activities			Litter/debris	3.1	3.0
M15	Marine Ecosystems	Water column (motile)	Population	Established Marine Animal (other than turtles) Disease & Pathogens	1.9	3.0
M17	Marine Ecosystems	Water column (motile)	Population	Established Alien Species - Water Column Marine	2.5	3.0
M21	Marine Ecosystems	Water column (motile)	Population	Alien Incipient Invasives - Water Column Marine	2.1	3.0
M27	Marine Ecosystems	Intertidal	Population	Established Alien Species - Intertidal Marine	2.5	3.0
P01	Climate & Air Quality			Visibility	2.9	3.0
P18	Soil, Water, & Nutrient Dynamics			Wetlands (incl. anachaline pools) hydrology	3.2	3.0
P27	Water Quality			Marine Water Quality - Microbiology	2.8	3.0
P43	Geology	Landforms		Cave Geology: non-karst	2.2	3.0
T27	Terrestrial Ecosystems	Consumers	Population	Shorebirds and Waterbirds (including T & E spp.)	3.3	2.9
F2	Freshwater Ecosystems	Consumers	Community	Aquatic and Riparian Species (vertebrate and invertebrate) Biodiversity	3.5	2.8
H01	Soundscapes			Alien, Natural, Human Soundscapes	2.6	2.8
H11	Park Use & Activities			Bio-prospecting Harvest	1.9	2.8
P10	Soil, Water, & Nutrient Dynamics			Ocean/Physical Dynamics: Currents, Sea Level, Tides/Swell	2.7	2.8
P24	Water Quality			Marine Water Quality Supplemental parameters	2.9	2.8
T35	Terrestrial Ecosystems	Consumers	Population	Established Alien Species - Terrestrial Invertebrate Pests (agricultural)	1.8	2.8
T39	Terrestrial Ecosystems	Consumers	Population	Alien Incipient Invasives - Terrestrial Invertebrates	2.2	2.8
F4	Freshwater Ecosystems	Consumers	Population	Amphidromous Fauna Size-Age Structure, Reproduction and Recruitment	2.1	2.6
P38	Geology	Hazards		Mass Geologic Wasting	1.6	2.6
T25	Terrestrial Ecosystems	Consumers	Population	Invertebrate Charismatic or Species of Concern	3.2	2.6
P09	Climate & Air Quality			Climate Representations - 2- & 3- dimensional	1.7	2.4
T28	Terrestrial Ecosystems	Consumers	Population	Terrestrial Invertebrates Associated with Habitat Quality	2.7	2.4
P40	Geology	Landforms		Dune Change (erosion & accretion)	0.9	2.4
H13	Park Use & Activities			Culturally Significant Plant Harvest	2.5	2.2
P02	Climate & Air Quality			Atmospheric Deposition: Wet (direct & occult) and Dry	2.1	2.0
P05	Climate & Air Quality			Atmospheric Particulates: Climate Change Indicators, Human Pollutants, Natural-Volcanic	2.2	2.0
P11	Soil, Water, & Nutrient Dynamics			Biogeochemical Cycles - Nutrient Cycling	2.5	2.0
P34	Geology	Hazards		Volcanic Unrest - Ground Deformation	1.4	2.0
T04	Terrestrial Ecosystems	Vegetation	Landscape	Fire Effects & Dynamics: Vegetation and Landscape Level	2.5	2.0
T05	Terrestrial Ecosystems	Vegetation	Landscape	Forest Dieback	1.5	2.0
P35	Geology	Hazards		Volcanic Unrest - Lava Flows	1.2	1.8
T10	Terrestrial Ecosystems	Vegetation	Community	Recovery/Change of Native Vegetation with Invasive Alien Invertebrate Control	1.8	1.8
T20	Terrestrial Ecosystems	Consumers	Community	Recovery/Change of Native Invertebrates Communities with Native Plant Restoration	2.5	1.5
H10	Park Use & Activities			Subsistence Farming/Agriculture	1.2	1.0
P03	Climate & Air Quality			Atmospheric Gases: Climate Change Indicators, Human Pollutants, Natural-Volcanic	2.2	1.0
T24	Terrestrial Ecosystems	Consumers	Population	Herps (native)	1.7	1.0
H14	Park Use & Activities			Culturally Significant Vertebrate Species Harvest	1.6	0.0